

DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee
Owned and Published by the Medical Society of Delaware*

VOLUME 17
NUMBER 9

SEPTEMBER, 1945

Per Copy, 20c
Per Year, \$2.00

ORAL PENICILLIN

A REVIEW OF THE LITERATURE AND PRELIMINARY REPORT

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Since the early investigation of various routes of penicillin administration, an attempt has been made to overcome the destruction of the drug by the hydrochloric acid of the stomach, and to thereby obtain adequate blood levels by oral administration. Rammelkamp and Helm¹ have shown that penicillin administered orally to two patients with achlorhydria associated with pernicious anemia, produced blood levels not unlike those obtained after intramuscular or intraduodenal administration.

Charney, Alburn and Bernhart² administered 20-30,000 units of penicillin by mouth, buffered with 1-5 grams trisodium phosphate (both dissolved in 200-400 cc. in water), and reported finding an appreciable increase in the urinary excretion of the drug, when compared to controls in which no buffer had been given. Gyorgy et al³ reported that penicillin given by mouth in combination with trisodium phosphate was found to be therapeutically effective in a number of cases of gonorrhea and other diseases. The serum concentrations in twelve children given 40,000 units without buffer (in freshly prepared aqueous solution) compared with twelve children given four tablets orally (each tablet containing 10,000 units of penicillin calcium and 1 gram trisodium phosphate) revealed that one hour after ingestion, blood levels of from 1-0.05 units per cc. of serum (with assayable levels at the end of four hours), were obtained in the buffered series; and from 0.75-trace units per cc. of serum (with trace levels at the end of three hours), in the controls. From these observations, it was concluded that buf-

fered penicillin by mouth produced greater and more prolonged levels than when ingested without buffer salt and that the effective doses by mouth were comparable to those used parenterally.

Burke, Ross and Strauss⁴ described a method whereby the concentration of penicillin following ingestion of 100,000 and 200,000 units, compared favorably and in some respects surpassed those obtained by administering 40,000 units parenterally. A gelatin capsule, containing 100,000 units of the powdered penicillin salt was placed in a larger size capsule, treated with 1:20 formaldehyde and 95% ethyl alcohol, and ingested 30 minutes after swallowing two aluminum hydroxide tablets. These workers reported the highest blood levels to occur one-half hour following administration, with assayable levels still present after 3-4 hours. An average of 2.5 units per cc. of serum was obtained one-half hour following a dose of 100,000 units, in six normal subjects, as compared with 0.6 units per cc. 30 minutes after 40,000 units intravenously, and 2.5 units per cc. after 45,000 units intramuscularly. They recommended that oral penicillin be given at suitable intervals before meals, to insure a rapid passage of the capsule from stomach to small intestine. In experiments with 200,00 units, they showed that proportionately higher and longer sustained levels were obtained.

Welch, Price and Chandler⁵, reported that administration of oral penicillin adsorbed on either aluminum or magnesium hydroxide resulted in prolonged blood concentration of this drug. The sodium salt was dissolved in 20 cc. of water, to which had been added dropwise, with constant agitation, 30 cc. of U.S.P. aluminum hydroxide. This dose was given to eleven normal subjects 2-3 hours after breakfast and an adequate blood level (0.3 units per cc. of serum) was obtained 30 minutes after ingestion; the level, however, fell rapidly thereafter. Thereupon, four equal

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doses (12.5 cc.) of 25,000 units each of penicillin-aluminum hydroxide were administered to twenty-one subjects at two hour intervals. One-half hour blood levels after each ingestion ranged from 0.14-0.27 units per cc. of serum, and following each dose there was a pronounced increase in blood concentration over the previous level. Moreover, levels of from 0.03-0.19 units per cc. of serum were obtained for as long as 24 hours after the administration of this dose. Relatively small amounts were excreted in the urine, the penicillin apparently being inactivated within the body. From these findings, the authors suggest that relatively high levels of penicillin may be maintained by increased frequency of oral doses of this modified penicillin, and that this dosage form may have some prophylactic value.

At the suggestion of Dr. Lewis B. Flinn, an investigation was initiated to determine the blood concentration obtained with oral penicillin, and to evaluate methods of penicillin assay. Consequently two of his patients were given oral penicillin buffered with trisodium citrate*, and their blood assayed with the following results:

TABLE I
PENICILLIN BUFFERED WITH
SODIUM CITRATE

Date	Case	Sod. Penicillin Units	Route	Blood Levels, Units/cc. serum after ingestion			
				1 hr.	2 hrs.	3 hrs.	
5/8	1	30,000 q. 3h.	I.M.	<0.2	<0.2	<0.2	
5/14		60,000 q. 3h.	oral	0.4	0.2	<0.2	
5/17		20,000 q. 3h.	oral	<0.2	<0.2	<0.2	
5/21, 5/24, 5/25		40,000 q. 3h.	oral	<0.2	<0.2	<0.2	
5/31		60,000 q. 3h.	oral	<0.2	<0.2	<0.2	
5/7	2	30,000 q. 3h.	I.M.	0.4	<0.2	<0.2	
5/14		40,000 q. 3h.	oral	0.4	0.4-0.2	<0.2	
5/17		20,000 q. 3h.	oral	<0.2	0.4	<0.2	

From the foregoing (Table I), the following observations were made:

Assigning a therapeutic level at 0.3 units per cc. of serum (which appears to be higher than some of the accepted figures), the first patient did not show a level exceeding 0.20 units per cc. of serum, on a dosage of 20-40,000 units orally. Only when the oral dose was increased to 60,000 units was an adequate concentration obtained. The optimum level, however, was not reached on a routinely employed intramuscular dose of 20,000 units; furthermore, cultures taken from the infected osteomyelitis wound during oral therapy proved sterile.

In the second patient, adequate levels were obtained on oral administration, compared with those by the intramuscular route. This may be accounted for by delayed penicillin excretion due to the renal dysfunction in chronic nephritis.

The technic used for these assays was that described by Cooke⁶.

At the suggestion of Dr. James C. Kakavas⁷, a modified assay technic was investigated, which he developed at the Haskell Research Laboratory, University of Delaware. Comparative analyses of these two procedures showed essentially similar results, and the Kakavas technic, because of its simplicity, seemed better adapted for use in the hospital laboratory. It has therefore been the one followed in subsequent studies. Through the author's kindness, we are permitted to describe his technic⁸ in brief:

- (1) Two series of small tubes are used; unknown and standard.
- (2) Serial dilution of the unknown fluid is made in broth.
- (3) Using a known potency penicillin standard*, containing 1 unit per cc., similar serial dilution is made in broth.
- (4) The test organism is a standardized suspension of *B. subtilis* spores added to each series of tubes, which are then incubated at 37° C. overnight, and read the next morning.
- (5) Growth of *B. subtilis* at 37° C. consists of a pellicle, and if whole blood is assayed, hemolysis of red blood cells, thus permitting a sharp endpoint.
- (6) The last tube in each series in which growth occurs is the endpoint.
- (7) By comparing the endpoint of the unknown with that of the standard, the concentration of the unknown is determined.

Following the method of Welch et al⁵, a brief evaluation of oral administration was carried out. One hundred thousand units of penicillin sodium were dissolved in 20 cc. distilled water and mixed with 40 cc. aluminum hydroxide gel. One of us (J. W. H.) ingested 25,000 units of this preparation, and

* Prepared by S. Segal, Ph. G., Wilmington, Delaware.

⁶ Obtained from Dr. Albert C. Hunter, Food & Drug Administration, Washington, D. C.

blood was obtained for assay, at the following indicated intervals, beginning one hour after breakfast:

TABLE II ORAL PENICILLIN WITH ALUMINUM HYDROXIDE, 25,000 Units per Dose

Date	Sodium Penicillin Units	Ingested	Specimen Obtained	Whole Blood Level Units/cc.
8/10/45	25,000	8:30 A. M.	9:30 A. M.	0.25
	25,000	10:30 A. M.	11:30 A. M.	0.50
	25,000	1:30 P. M.	1:40 P. M.	1.0
	25,000	3:30 P. M.	5:00 P. M.	0.5

It will be noted (Table II) that adequate blood levels were obtained at 1, 1½, and 3 hours after ingestion, and that the levels increased progressively.

In order to determine the time of maximum blood concentration, and the duration of a therapeutic level; 100,000 units of penicillin sodium, dissolved in 10cc. distilled water and 50 cc. of aluminum hydroxide gel, were ingested orally (J. W. H.) one hour after breakfast.

TABLE III ORAL PENICILLIN WITH ALUMINUM HYDROXIDE 100,000 Units per Dose

Date	Sodium Penicillin Units	Interval After Ingestion	Whole Blood Level (Units/cc.)
8/21/45	100,000	5 minutes	0
		10 minutes	0
		15 minutes	0.5
		30 minutes	1.0
		60 minutes	0.5
		4 hours	0.25

An adequate level (Table III) of penicillin occurred in the blood 15 minutes after ingestion, and increasing amounts appeared 30 minutes and one hour following ingestion; 4 hours after there still remained an assayable level.

TABLE IV ORAL PENICILLIN WITH ALUMINUM HYDROXIDE CASE 3

Date	Sodium Penicillin Units	Route Administered	Dosage Interval	Blood Levels (Units/cc.) After Ingestion			
				½ hr.	1 hr.	2 hrs.	3 hrs.
8/24	20,000	I.M.	q. 4 h.	0.25			
8/25	25,000	oral	q. 2 h.	0.25-0.5			
8/26	25,000	oral	q. 2 h.	0.25-0.5			
8/28	25,000	oral	q. 3 h.	0.5	0.25	0.25	0.25

Table IV summarizes the results of eleven serum penicillin assays on Case 3*, a 16 year old Negress with a clinical diagnosis of acute gonorrhea (cervical culture positive on admission). It was noted that on an oral dose

of 25,000 units given two hourly, serum levels of from 0.25-0.5 units were obtained, with the highest concentration reached 1-3 hours after meals. These compared favorably with levels obtained from a usual intramuscular dose. It will also be observed that similar serum levels were reached when the oral dose was given three hourly; and again, highest levels occurred 1-3 hours after meals. A cervical culture taken five days after penicillin therapy was negative. The patient did not mind the chalky taste of the penicillin mixture, and much preferred that method of administration to intramuscular injection.

CONCLUSIONS

1. Adequate therapeutic blood levels can be obtained with orally administered penicillin, and these compare favorably with those following intramuscular administration.
2. Oral penicillin administered with aluminum hydroxide gel appears to produce a higher blood concentration than that with sodium citrate.
3. The optimal blood level appears one-half hour following oral administration, particularly if the drug is ingested 1-3 hours after meals.
4. Oral penicillin appears in assayable blood levels up to four hours after a single administration.
5. The Kakavas assay technic, because of its simplicity, has been found to be better adapted for hospital laboratory use.

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*Dr. Carl Henry Davis's service, Delaware Hospital. Dr. Davis has given his kind consent to present these findings.

PSYCHOGENETIC DISTURBANCES OF HEARING AND VISION

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The psyche can be described as a liaison between our inner emotions and our perception of the outer world. The psychotic is influenced by changes in his auditory perceptive apparatus which are not anatomic but entirely psychogenetic. In many paranoid states the individual will hear what he wants to hear, and will not hear what is unpleasant to him. There are numerous instances where he misinterprets what he has heard, in such ways as to gratify his own ego.

The axiom to hear what we want to hear, and not to hear what we do not want to hear may be applied also to the visual apparatus. We know that ocular impressions may effect two persons seeing the same picture in a different way; that is, we see what we want to see and we do not see what we do not want to see.

Eleven years ago I published a translation of a paper *Psychogenetic Disturbances of Vision** including many cases which showed that the same ocular impressions influenced different people in a biased manner.

The inner emotions—because interest is a question of emotions—determine our perception of the world. Wernicke's overvalued idea limits one's psychic horizon. All psychopathic persons suffer from a scotoma; there is something they do not want to see. The visual person perceives differently from the auditive person. Everyone has one sense that is dominating. One may call it the sense of predilection, which dominates one's perception.

Psychologists and physicians still know too little about the defects of the senses. They have studied color blindness, but they know little about individual differentiations of smelling, seeing, hearing, and feeling. Aside from the sense of predilection, a defective sense always exists. The one sense becomes hypertrophied at the expense of the other.

To illustrate these facts I wish to report two cases, hitherto unreported, in psychologic literature. One deals with psychogenic au-

ditory disturbances, the other with psychogenetic visual disturbances. All internists, specialists and modern general practitioners, know the rapid invasion of psychosomatic medicine, and its rapid stride in the understanding of disease.

I

PSYCHOGENETIC DISTURBANCES OF HEARING

This patient was referred to me by an aurist, who found pathological changes in his auditory apparatus on one side which might have accounted for a mild deafness, but could not account for the marked deafness and vertigo present.

The patient was a forty-five year old male with a negative family history. For about thirty years he was employed by a steamship company. He had a mediocre education, and very little could be ascertained about his sexual life, since the analysis lasted only about twenty sessions, and must be considered fractional in type.

At nineteen he had a love affair and claimed that the girl's brother tried to coerce him into a marriage. Early in life he had a guilt complex as he had participated in an attempt to outrage a girl minor, twelve years of age. He also had a homosexual trauma at twenty-two.

For over fourteen years he had been attended by an otologist and during this time became progressively more nervous. The psychological aspects that precipitated the onset of his disturbances in hearing were as follows: he had been asked by one of the officers of the firm to join a Masonic order. He had to refuse as he was a Catholic. Following this, he believed he was discriminated against and not promoted. He connected this incident with a previous one that went back twenty years when he was asked to do some spying to get some data for a director of the firm.

His main symptom was a paranoid idea directed against the officer of the firm who he believed had prevented him from obtaining promotions. This elderly gentleman was without doubt his father surrogate. On one occasion he went to this man and asked him whether he wanted him to resign.

His hate component was so manifest at times that he developed homicidal ideas, and

* Stekel Wilhelm: *Psychogenetic Disturbances of Vision*. Authorized Translation and Abstract by Louis S. London. Arch. Ophth. 12: 38 (July) 1934.

thought of throwing his arch-enemy out of the window. He held him responsible for four men who died in his employ, and believed he had shortened their lives by his unjust treatment.

There were psychogenetic fears of impotence that were masked by recent symptoms of vertigo and auditory disturbances. When he walked through the streets he had to hug close to the buildings, for fear of falling. He believed he was looked at furtively, especially when on a recent trip to Puerto Rico.

It was ascertained that singularly enough the officer whom he thought had conspired against him suffered from symptoms similar to the patient's, i. e., vertigo and disturbances of hearing. There was a marked identification of hatred towards this man who represented the authority of his father, whom he hated in his childhood.

The patient also had insomnia and had to indulge moderately in alcohol to overcome this symptom. He was very irritable toward a sister with whom he lived. His disturbances of hearing seemed to be aggravated when at his office. At home he seemed to be free of any symptoms, as here he did not have to answer the telephone and could not hear what others were saying.

There was an ambivalent complex in this case. His inferiority and inability to work was ambivalent to his expansive paranoid trend concerning his ability. He considered himself indispensable in his work, and thought he was essential to his employers.

He did not want to hear because he feared that he would hear derogatory remarks. He had chosen his auditory apparatus, which was the weakest in his system, as a protective mechanism to escape from an intolerable situation.

The analysis of this case is reported as evidence of a psychogenetic condition that probably is very common in the experience of otologists.

II

PSYCHOGENETIC DISTURBANCES OF VISION

The patient is a somewhat oversized twenty-year-old boy, six feet two inches tall, and having a macrocephalic head. He is a native of the United States and gives a history of neuropathic tendencies existing in his im-

mediate family history. His sister is neurotic and his brother is a bed-wetter.

He attended a private school and high school and was preparing to enter college when he injured his right eye in a football game. He consulted four leading ophthalmologists and they all made a diagnosis of a detached retina first in the right eye and later in both eyes.

Following this he ceased his athletic activities, and began to treat himself. He first closeted himself in a dark room for four months. Later he covered his eyes first with eye cups, and later with cardboard. He tried to contract the muscles of his neck by rolling himself on the floor, going through calisthenics to attempt the overlapping of his vertebrae. He went through many grotesque contortions, and avoided sitting on chairs. He held his head forward, believing he could stretch his vertebral column. He avoided regular exercise, bathing and other activities in order to limit the circulation of his eyes.

He tried other methods, lying continuously on his back with legs crossed, eyes closed and concentrating his thoughts on the belief that his body was heavy, it becoming then dissolved or disintegrating. At other times he assumed rigid postures, fearing to look to his right or left, and remained in these catatonic positions for hours at a time. He described seeing various white discs and colors and thinking he was doomed to blindness. He also studied Braille. He did not read for nearly three years.

His mother, noting his peculiar conduct, consulted the writer about committing him to an institution, but psychoanalysis was recommended.

He was affable and willing to discuss his problems, and an abstract of his analysis is included. This lasted about one hundred sessions in a period of eighteen months. The nucleus of his difficulty was centered around a latent homosexuality following an Oedipus complex.

Relationship to Mother: An emotional episode revealed during the analysis showed an Oedipus situation which existed in childhood, reversing the love component to hate. This ambivalence continued throughout his life. At times there were affectionate periods

between mother and son, at other times serious discord during which derogatory remarks were exchanged. He was disciplined and punished during childhood, and the early incestuous fixation he had for his mother was later transferred by identification toward his sister, whom he fantasied in his autoerotic practices. Many sexual fantasies towards both his mother and sister were revealed during the analysis. Some of his day fantasies were so regressive in character that they reached far into his early infancy, even in utero, as he once fantasied lying in his mother's womb.

As a child he was very imaginative, and his visual apparatus seemed to be his sense of predilection. He played with his bed-sheets and pillows imagining the bed-sheets as horses and the pillows as saddles.

His sexual life was also provoked at an early age. He was curious about the anatomy of the genitals of children, and whenever he had the opportunity would examine them, to ascertain whether they were male or female. He obtained sexual gratification at the age of four when he remembered stealing something that gave him sexual gratification which he later compared to sexual orgasm in autoeroticism.

His fantasies in his sexual autoerotic life were colored by perversions, which were mainly sadism, masochism and coprophilia. He often covered his urethra with adhesive tape to prevent ejaculation. His pedophilic impulses were even present at the age of eighteen, when he molested an infant of eighteen months to determine its sex. He had read that overweight babies at birth had a gonadal deficiency, and he reasoned that this also applied to himself, as he had weighed sixteen pounds at birth.

His earliest experiences of manifest homosexuality occurred when he was eight years old. At that time he slept with his brother, and often played with his brother's phallus. At other times, he tried to peek at his brother's genitals under the bed-sheets and this was the origin of his visual sense of predilection. Whenever he had the opportunity during childhood he would grasp the phalli of boys. He felt effeminate because he had narrow shoulders and was envious of the broad

shoulders of boys. At times he was called a "fag" (homosexual) by boys.

He admitted other manifest homosexual desires, fantasied the approximation of his genitals to other boys' genitals, a condition often referred to as tribadism in females. He often obtained spontaneous ejaculation when in the company of boys and seemed to go through a bisexual period during his adolescence. When going to a masquerade he often dressed as a girl and danced with boys. In his heterosexual life he remembered an incident at six when he played with the pudendum of a girl of three.

He showed a partialism towards the mammae of women, and in the analysis the origin was determined as emanating from his early primary identification towards his mother and his secondary identification to his sister. Although his manifest symptoms seemed to have been precipitated by his eye injury, there were latent schizophrenic symptoms that went back many years. Many years before he had vague auditory hallucinations, when he heard the bed-sheets crackling, and this was due to the guilt conflict in trying to peek at his brothers' genitals under the bed sheets. He also heard sounds resembling the running of trains and the hissing of steam, and at times they were intermingled with hallucinations of sensation (parasthesia). The somatic hallucinations he had in his fingers were symbolic of similar feelings he had in his phallus.

For years he had been subject to outbursts of silly laughter. Later, he developed paranoid ideas. He thought everyone was laughing at him. His feelings of depersonalization could be traced back to his school days when he thought he was of divine origin.

After several months of analysis he visited an ophthalmologist who prescribed glasses, and with this improvement in his visual apparatus he was able to secure a position. He began to take an active interest in his social life, and attended dances.

He now began to believe that his eye condition was entirely psychogenetic. Many exhibitionistic conflicts now appeared and his thoughts were dominated by sexuality. His homosexual ideas were colored by fantastic explanations: he feared standing on one leg,

or wearing red neckties. When taking a candy chocolate bar from a boy's lap he had a spontaneous erection and ejaculation.

He was very narcissistic, spending hours gazing at himself in mirrors. He was left-handed and tried to become ambidextrous. It was also ascertained that he had an undescended testicle. Attempts were made to bring it down by endocrine therapy by a urologist, but this failed. The patient did not want to resort to surgical intervention.

Many death wishes toward his mother were disclosed in his dream life, and these followed reading a story of a boy who killed his mother and then went to play in a football game. Other sadistic thoughts were eliminated, the dynamiting of trains, and the killing of large numbers of people.

The patient made remarkable progress after seventy-five sessions, but his mother instilled ideas that there was procrastination in his treatment. She said, "Psychoanalysis is a racket, and how long will you go for treatment, until you grow whiskers?" This criticism eventually proved fatal to his recovery. The writer discharged the patient and reprimanded the mother.

Six months later, his mother pleaded that his treatment be resumed. It was, but the patient had regressed rapidly and after about twenty-five more visits he had to be hospitalized. At this time he had developed a marked delusional trend, developed ideas of omnipotence, and thought he was the King of England. He also began to react to auditory hallucinations. He thought he had been married, and had other sexual delusions.

He maintained a position for a time but had to relinquish it at the time he was hospitalized. After hospitalization he was subjected to both insulin and metrazol shock therapy but without any material benefit. He regressed very rapidly in his emotional, volitional, and intellectual fields.

There is no question that during the first period of his analysis he improved, and had his mother not intervened his condition may have been permanently arrested.

COMMENT

The psyche is the liaison between our inner emotions and our perception of the outer world. The axiom we hear what we want to

hear and not what is painful to us, observed in psychogenetic auditive disturbances, is similar to the axiom we see what we want to see not what we do not want to see, which is observed in psychogenetic disturbances of vision.

Case one's auditive apparatus showed disturbances of hearing psychogenetically induced, and were paranoid in nature. His reactions occurred only at his place of employment; at home he was free of symptoms. In case two a psychotic condition supplanted a train of symptoms which simulated a bilateral detached retina.

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DIRECTRESS RESIGNS

Miss Lucile E. Dugan, directress of nurses and superintendent of the School of Nursing at Delaware Hospital for 14 years, will retire at the end of October.

Recently Miss Dugan resigned the chairmanship of the Red Cross Nursing Recruitment Service and her position as a member of the board of directors of the State League of Nursing Education and the Delaware State Nurses Association. During her career in Delaware she has held all of the offices of the State Nurses Association.

In addition to her other duties, she served as president of the state board of nurse examiners for two years, and a member of that board for nine years.

Miss Dugan has no definite plans for the future except as she said recently, "I want to do some of the things that I have always longed to do, among them, go to California, and take life easy for awhile."

A successor at Delaware Hospital has not yet been announced.

Routine X-rays of patients, nurses, and other hospital employees will not only disclose unsuspected tuberculosis which is extremely important to the individual, but will also protect other patients and employees from the danger of infection. As more and more states are making tuberculosis a compensable disease, this factor will become increasingly important to hospital administration. Karl H. Pfeutze, M. D., Mineral Springs San., Cannon Falls, Minn.

CLINICAL CASES FROM THE HOSPITALS

MYELITIS COMPLICATING VARICELLA

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The conception of varicella as a relatively innocuous disease is well founded by clinical experience. Neurological complications are rare, Ford¹ reporting only twenty recorded cases. Waldman² reports a fatal case of acute ascending myelitis in an adult following chickenpox. Krabbe³ reports a case similar in many respects to the one described below. Mastens⁴ review of the literature shows varicella to have a complication rate of 5.2 percent, and of these 6 percent are neurologic. Twenty-seven percent of cases of neurologic complications die or have residuals. Gay⁵ describes a case in which he noted complete anesthesia of the soles of the feet similar to the findings in the case reported here. Smith's⁷ case had residual weakness of the legs which persisted for almost a year. His patient also had very severe sensory disturbances of the legs which lasted for two weeks.

CASE REPORT

R. S., a white boy, four years old, was admitted to the Milford Memorial Hospital on July 29, 1944, with a chief complaint of generalized weakness. The family and past history were not significant.

The present illness began on July 20 with a typical attack of varicella with a moderate number of lesions scattered over the body. He was not very ill and showed only a low grade fever for two or three days. He had been definitely exposed about fifteen to eighteen days before the onset of the eruption. Four days after the beginning of the eruption he complained of sore throat and a feeling of nausea. The following day his mother noted that he staggered somewhat while walking. That evening while getting out of bed he fell. On the seventh day, after the onset, he vomited three times. His mother noted that his speech was slow and "thick" and that he appeared weak. Nine days after the onset of the eruption and

four days after the beginning of weakness he was admitted to the hospital.

Physical examination showed nothing noteworthy save a moderate number of dry crusted lesions typical of the healing stage of varicella scattered over the body.

Neurological examination. The boy was lying quietly in bed in no apparent pain or discomfort. He did not appear ill. There was no respiratory difficulty. The facies had a peculiarly immobile appearance suggestive of that seen in a post-encephalitic. The pupils were dilated, equal, regular, and reacted to light and accommodation. There was a slight horizontal nystagmus. Convergence was normal. There was no weakness of the extraocular muscles. The eye grounds appeared normal on ophthalmoscopic examination. The tongue projected in the mid-line and showed some irregular movements. The uvula retracted normally on phonation. There was no nuchal rigidity. The respiratory movements were equal. The abdominal reflexes were slight and equal. The cremasteric reflex was bilaterally equal. The extremities showed no signs of wasting. The legs and arms were moved slowly and with difficulty. The patellar, tendo achilles, biceps and triceps reflexes were equal and active. There was no Babinski, Brudzinski, or Kernig's sign. There was marked generalized hyposthesia from the level of the third rib downward, with almost complete anesthesia of the soles of the feet. Actual penetration of the soles with a pin produced hardly any pain response. When placed in a standing position he stood with his legs held far apart and had to be held to prevent falling. These were marked ataxia. The gait was irregular and showed a scissors-like action when he was helped to walk.

Laboratory findings. The spinal fluid was under normal pressure and clear. There were three lymphocytes per cubic millimeter. The Pandy test showed no increase in globulin and the sugar was 60 milligrams percent. The urine showed a faint trace of sugar but no albumen. The blood count was within normal limits.

Course. Eight days after the onset of neurological signs he was able to roll over in bed freely. There was some difficulty in swallowing for a few days. The muscular power of

the extremities was slightly increased, but he was still unable to stand alone or walk without help. On the tenth day he was much livelier. He showed better control of the movements of his hands and was able to feed himself with little spilling of food. On the fifteenth day he was able to ride a tricycle but found walking so difficult he resorted to creeping to get about. At this time he showed normal response to touch and pin prick. At the end of the third week he was able to walk without help, though he was still somewhat unsteady on his feet. It was also noted that physical power and coordination was poorest on awakening in the morning and gradually improved up to 1 P. M., when strength and activity were at a maximum. At the end of the fourth week there was no difficulty in walking, standing, or running, although there was still hesitancy and uncoordination in performing fine movements of the hands. The period between awakening and full muscular activity and control was now shortened to one or two hours. The expression was more animated. There was no apparent alteration in memory or mental acuity according to the mother. However, fatigue or fits of temper caused the eyes to turn upward, somewhat resembling an oculo-ogyric crises. At the end of the fifth week the boy appeared to be completely recovered.

COMMENT

The history and physical findings indicate a myelitis complicating varicella. This condition is not rare with some of the other exanthems, notably measles. The case discussed received no specific therapy. Krabbe's³ case was treated for twelve days with hexamethylenetetramine, with eventual complete recovery. Heller⁵ reports a case in a thirty-four year old man in which he used intravenous injections of typhoid bacilli. Masten⁴ reports two cases in which forced spinal drainage was done and the patients also received large doses of vitamin B complex, with eventual recovery. The small number of cases observed and their clinical variability, with tendency to spontaneous recovery, prevents any consistent plan of treatment. It is possible that the use of the more recently discovered whole blood fractions, such as gamma globulin, might offer something in the way

of more rational treatment. The author observed a case of encephalomyelitis complicating measles in which the administration of large doses of globulin appeared to mark the turning point in the clinical course of the disease, with eventual complete recovery.

SUMMARY

A case of myelitis complicating varicella, with eventual recovery, is reported.

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MISCELLANEOUS Hormone Cosmetics

Claims that the new cosmetic preparations containing hormones will remove wrinkles and blemishes and give the skin a softer and more youthful appearance are fraudulent and have no scientific support, according to an official release from the Council on Pharmacy and Chemistry of the American Medical Association. The Council includes in its membership 17 leading physicians, chemists, biochemists, and other scientists.

The statement, which appears in the June 16 issue of *The Journal of the American Medical Association*, says that the cosmetic preparations containing female sex hormones, known as estrogens, represent a "useless outlay of considerable sums of money by purchasers who still believe in the development of 'miracle' compounds that can be used safely with the assurance that their hopes for beauty and health will be fulfilled." Continuing, the Council's statement said:

"The public is now offered preparations containing ingredients as potent as hormones, without evaluation by any unbiased body. If the cosmetic preparations containing hormones will do all that is claimed for them, they must contain potent agents. Why, then, do none stand accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies? Any compound promoted to affect the structure or function of a part of the body such as the skin should be carefully evaluated before it is released for general sale.

"Much experimental work has been done on the cancer-producing properties of estrogenic substances. In susceptible animals the administration of estrogens has apparently produced carcinoma (cancer), but further observations are necessary to determine all possible effects of long continued use of such substances in the average human being. Some authorities believe that the injudicious use of estrogen-containing cosmetic preparations may permit sufficient absorption from the skin to upset normal body activities. For example, it has been argued that changes in menstrual rhythm may occur because of the absorbed estrogen affecting the activity of the pituitary gland.

"Enormous sums of money are being spent to purchase hormone-containing preparations and yet many authorities in the field of endocrinology have stated time after time that there is no satisfactory evidence which would justify the use of hormone-containing cosmetics for their local effects on the skin. More than one authority has questioned the honesty of manufacturers when claims have been made that the promoted preparations would counteract age changes, wrinkles and skin blemishes.

"Authorities in the field of endocrinology have stated that there is no published and acceptable evidence that age changes and wrinkling are consequences of estrogen deficiency or that estrogen therapy in women who are known to be deficient in ovarian secretion produces changes in the skin; nor is the deficiency of ovarian activity to be compared in importance with skin changes due to exposure, lack of care, malnutrition and many systemic diseases.

"The physician who is asked to give advice to his patients concerning the use of cosmetic preparations containing hormones will ask: What are the local effects, the general effects, and what may follow long continued use? Satisfactory data to support the answers offered by the promoters have not been provided.

"Frequently there has been suggested the need for carefully controlled studies when potentially active preparations are placed in commerce. Those who have kept in mind the importance of such studies have developed

criteria for their guidance. However, when the scientific literature is searched for evidence concerning the studies made prior to the commercial distribution of cosmetics containing hormones and other substances, for that matter, the lack of convincing data is significant.

"The prevention and treatment of disease and allied subjects are fields in which conjectural reasoning must give way to demonstrable facts. All new drugs should be studied in the laboratory and the clinic. The Council on Pharmacy and Chemistry in its consideration of new drugs asks for evidence of safety and for evidence to support the claims. Such evidence should be available for all who are urged to use a drug or other special preparation or to comment on its efficacy. Similarly, scientific facts concerning hormone-containing cosmetics should be generally available. Certainly the Council has not received satisfactory evidence on absorption, sensitivity, systemic effects, local beneficial effects, toxicity, relation of age, physical factors such as illness, and other factors. Until these and other studies have been completed, made public and found reproducible by unbiased investigators, there can be little honest reason to indulge in the promiscuous sale of hormone-containing cosmetics. Perhaps lack of such evidence is one of the reasons why promoters have not presented their preparations for Council consideration. Can financial gain be dominating humanitarian interests? If this is true, then there is no excuse for the widespread use of hormone-containing cosmetics."

The person who realizes that he has tuberculosis is more likely to take better care of himself and be more on guard against spreading his infection than if he is ignorant of the fact that he has the disease. John L. Rice, M. D., N. Y. State Jour. of Med., Feb. 1945

The marked reduction in birth rates in occupied Europe may be due to multiple causes, possibly quite remote from wartime undernutrition, but the increase in infant mortality rate, in infantile rickets, and in tuberculosis among children is probably related to undernutrition and malnutrition. Foreign Letters, J.A.M.A., May 6 and 27, 1944.



Delaware Doctors Honored in the Service



Maj. Gerald A. Beatty

The Meritorious Service Unit Plaque was recently awarded the 10th Field Hospital while serving troops of the Seventh Army in France. The 10th Field Hospital, activated on July 25, 1942, at Camp Bowie, Tex., is one of the oldest Medical Department hospitals in the European theatre, having participated in seven campaigns including two amphibious landings. The unit was cited for its tireless and brilliant work during the amphibious landing in Southern France and for the following land operations. Working in conjunction with clearing stations, the 10th Field Hospital was called upon to move as often as three times weekly, in order to keep with the combat troops. Personnel of the hospital, the first to handle casualties when Rome fell, are now authorized to wear the insignia, a golden yellow cloth wreath, on their right sleeve. Maj. Gerald A. Beatty, 2004 Park Drive, is a member of this unit. *Journal-Every Evening*, March 15, 1945.

Lieut.-Comm. Ward W. Briggs

For meritorious service aboard a hospital ship from September, 1943, to January, 1945, Lieut.-Comm. Ward W. Briggs of the Medical Corps, U. S. N. R., was recently awarded a special commendation at the U. S. Naval Hospital, Corona, Calif. Commander Briggs is the son of Mrs. H. Ward Briggs and the late Dr. Briggs, of 1026 North Jackson Street.

The Navy doctor served aboard the hospital ship Solace in the Pacific. The commendation stated that his outstanding skill was responsible for alleviating suffering and minimizing the loss of life during his tour of duty aboard the hospital ship.

The commendation was presented to him by Capt. William H. Leake, chief of medicine at the Corona hospital. Commander Briggs is now on the hospital staff.

Before going into the Navy Medical Corps in April, 1941, the officer was house officer at Johns Hopkins Hospital. He attended Friends School, Union College at Schenec-

tady, N. Y., and the Johns Hopkins University School of Medicine.

His wife, Mrs. Madge Briggs, is with him. They live in Arlington, Calif. —*Journal-Every Evening*, July 27, 1945.

Capt. W. Garrett Hume, II

For heroic action in which he voluntarily endangered his own life to save others, the Soldier's Medal has been awarded to Capt. W. Garrett Hume II, 1401 King Steet.

According to the citation accompanying the award, Captain Hume, a medical officer with the 15th Air Force in Italy, went to the scene immediately when an ammunition ship exploded in the port of Bari, Italy, and began removing the injured and rendering first aid at the scene of the tremendous blast.

"With full knowledge of the possibility that another explosion equally as destructive might occur at any time, he courageously entered the most dangerous area and carried injured military and civilian personnel from wrecked buildings, in one instance entering a burning ship to effect the rescue of several persons," the citation stated.

The Soldier's Medal, instituted in 1926, is awarded to all members of the Army of the United States who distinguish themselves by heroism not involving actual conflict with the enemy.

The son of Mr. and Mrs. Clarence A. Hume of 512 West Twenty-third Street, Captain Hume, in a letter to his parents, said he was in a jeep about 200 yards away when the blast occurred. The jeep, he wrote, was raised off the ground by the concussion from the blast. He described the scene as "horrible."

Captain Hume has been in the Army since August, 1942. He received his flight surgeon training at Brookley Field, Ala., and for a time was also stationed at the Army Medical Training Center, Carlisle, Pa. He left this country in August, 1943.

After completing his pre-medical course at the University of Delaware, he entered Temple University Medical School where he re-

ceived his degree in 1941. He served his internship at the Delaware Hospital where his father is business manager, and entered the service shortly thereafter.

Along with his last award, Captain Hume is entitled to wear the Europe-Africa-Middle East Campaign Ribbons with two stars. He married the former Miss Ann Bosley and they have one son, W. Garrett Hume III, 4 years old.—*Journal-Every Evening*, June 9, 1945.

Maj. James W. Kelley

Maj. James Woodruff Kelley, 30, of 602 North Bancroft Parkway, who personally performed more than 400 major operations during his combat service with the 105th Evacuation Hospital in Europe, has been named chief surgeon of the Fifth Auxiliary Surgical Group. The local surgeon will go directly from Europe to the China-Burma-India theatre of war. His last letter was from Marseilles where he was waiting transportation to the Pacific.

A Bronze Star medal has been awarded Major Kelley for his services between Aug. 28, 1944, to May 8, 1945. His citation read in part: "Major Kelley, thoracic surgeon, 105th Evacuation Hospital, performed his duties in an exemplary manner. Through his initiative, surgical skill and indefatigable energy, Major Kelley was responsible for saving many lives and contributed materially to the high standard of medical services rendered by his unit."

The 105th Evacuation Hospital also received a commendation from Lieut.-Gen. W. H. Simpson, commander of the Ninth Army, which the hospital served. In the commendation the Army commander praised the work of both officers and men of the hospital for their expert care of the sick and wounded and expressed his personal appreciation to the whole hospital staff for "excellent performance of their duties and the successful accomplishment of their mission in our recent operations."

Son of Mr. and Mrs. John W. Kelley of the Bancroft Parkway address, Major Kelley is a graduate of Wilmington High School and the University of Delaware. He received his M.D. degree at Duke University. After his internship at Delaware Hospital here he re-

ceived a scholarship for post-graduate work in surgery at Duke University.

He was ordered to active duty in May, 1942, at Camp Hulen, Tex. He was also stationed at Fort Jackson, S. C., went on desert maneuvers in Arizona, and had a special course in chest surgery at Leland Stanford University, Calif., before going overseas in August, 1944.

The Wilmington surgeon landed in Scotland and then was in England for a time before going to the continent. His hospital was based in France, Belgium, Holland, and Germany.

Major Kelley is the brother of Mrs. Addie K. Calhoun, a teacher at the Mary C. I. Williams School.

The engagement of Miss Elizabeth Ramsey, daughter of Mr. and Mrs. John Ramsey of Tulsa, Okla., and Major Kelley was announced before he went overseas—*Journal-Every Evening*, July 24, 1945.

Maj. Thomas H. Pennock

For his part in enabling medical services to keep up with the rapid pace of the American advance into southern Germany just before V-E Day, Maj. Thomas H. Pennock has been awarded the Bronze Star Medal, the headquarters of the Twelfth Armored Division has announced.

Major Pennock, who was graduated from Friends School and the University of Delaware, and who served his internship at The Memorial Hospital, was attached to the 82nd Medical Battalion, Armored, at that time. He is now at Swabishall, Germany, with the 47th Medical Battalion headquarters of the First Armored Division.

His citation reads: "For meritorious service from April 15 to May 5, 1945, in southern Germany. During this period Major Pennock was assigned the mission of coordinating the medical services for an attached cavalry reconnaissance group in addition to the organic divisional cavalry reconnaissance squadron.

"Those organizations functioned as a separate combat command and moved rapidly, covering large areas, by-passing strong points of resistance, and penetrating as deeply as possible into enemy territory. For this rea-

son evacuation of wounded was necessary through enemy territory and frequently over long distances under very adverse conditions.

"In spite of these difficulties every wounded man in this organization received prompt medical care, in large measure due to Major Pennock's efforts. Frequently drawing enemy fire and crossing hostile territory, Major Pennock made daily personal contact with all elements of his command and by judicious and resourceful methods so employed the facilities at his command that wounded personnel were treated and evacuated promptly. By conserving the fighting strength of the above units Major Pennock has rendered meritorious service to this organization."

Major Pennock is the son of Mrs. William Darbee, of New Preston, Conn., formerly of Wilmington, and the late Dr. Harry R. Pennock of Wilmington. The major took his medical training at Hahnemann Medical College in Philadelphia.—*Journal-Every Evening*, August 8, 1945.

Capt. Frank S. Skura

Often under intense artillery, mortar, machine gun and small arms fire, Capt. Frank S. Skura, U. S. Army Medical Corps, has been on every operation of his combat engineers unit of the Third Army. Often he remained at his aid stations for days at a time to save lives and relieve the suffering of the wounded.

For his devotion to duty and his utter disregard for personal safety and comfort, Captain Skura, son of Mr. and Mrs. Stanley Skura of 304 South Broom Street, has been awarded the Bronze Star Medal. Until his family received the copy of his citation, they had believed his work to be in a hospital behind the lines.

The 35-year-old Wilmington physician, who had practiced at 103 North Rodney Street, enlisted in the Medical Corps in June, 1942. He received training at Carlisle Barracks, Pa., and then went on maneuvers in Tennessee and in South Carolina. He went overseas in July, 1944.

He is a graduate of Wilmington High School, the University of Delaware and of the Medical School of Georgetown University. He is interned at Wilmington General Hospital.

In a letter sent with the citation he wrote that he was writing while waiting for the radio news to be broadcast. He said "some colonel from the corps (engineers) pinned the medal on me. On reading the citation I looked around to see who they were writing about. I told you the colonel is a good Joe."

Continuing he said, "I think we have hit our toughest spots and since the Siegfried Line has been cracked the rest won't be so tough. The bridge on the Rhine was a big break. We have been sweating that river out for a long time now, but with that success it can't be half as tough."

The citation was for his work in the period from Sept. 8, 1944, to Feb. 8, 1945, in France, Germany and Luxembourg. He is now believed to be across the Rhine.—*Journal-Every Evening*, March 28, 1945.

Capt. Sidney Stat

A Wilmington doctor, Capt. Sidney Stat of 1818 Delaware Avenue, has been awarded the Silver Star for gallant performance in action—and now finds himself "oberburgomeister" of the German city of Heimbürg and about 12 surrounding towns.

The citation, signed by Col. C. L. Boyle, chief of staff, 83rd Infantry Division, states that Captain Stat disregarded his personal safety during action last April in Germany by voluntarily forming a rescue squad and while under heavy enemy fire, he directed the evacuation of wounded Americans and administered first aid to many others in nearby ditches.

Captain Stat who practiced medicine in Wilmington until he entered service is a graduate of the Wilmington High School. He is also a graduate of the University of Pennsylvania and thereafter receiving a master of arts degree at Columbia, he was graduated from the University of Pennsylvania Medical School.

He served his internship in St. Louis at the St. Francis Hospital where he was resident physician from 1929 to 1932.

According to information received regarding the incident mentioned in the citation for the Silver Star, Captain Stat's unit was in the rear of action.

A task force composed of some armored

tanks and infantry ran into a road blocked by the Germans who were concealed in woods and hills.

The Germans opened fire and caught the Americans in a trap, using machine guns, sniper and mortar fire from all sides.

The medics with the task force were either killed or wounded. The unit's ambulance was not available, having broken down.

It was in this situation that Captain Stat and his men volunteered to go down into the battle to help wounded Americans.

At present, Captain Stat's job is to administer the affairs not only of the town and 12 nearby towns but also two large prison camps with a 6,000 prison-soldier population.—*Journal-Every Evening*, August 3, 1945.

Capt. James William Urie

An Elmhurst battalion surgeon, Capt. James William Urie, has been awarded the Bronze Star Medal for heroic achievement on Mt. Mapatad, Luzon.

According to the citation, Captain Urie, received word that five seriously wounded men on the line needed medical attention at once. He moved out immediately with a party of five, over terrain so severe they were unable to reach the men the same evening.

Wounded once in action, Captain Urie, husband of Mrs. Anna C. Urie, 207 South Maryland Avenue, Elmhurst, holds the Purple Heart. He has been serving in the central and southwest Pacific theatres for the past 19 months.—*Journal-Every Evening*, August 6, 1945.

Lieut.-Col. Robert O. Y. Warren

Lieut.-Col. Robert O. Y. Warren, 1403 Delaware Avenue, an officer in the Medical Corps, attached to the Fifth Army in Italy, has received a special commendation from Lieut.-Gen. L. K. Truscott, Jr., commander of the Fifth Army, for his part in the evacuation of the patients when on Nov. 2 the hospital area where Colonel Warren was serving was flooded as the Arno River broke through the dikes at Pisa.

The commendation for Colonel Warren, said that "When an evacuation hospital area was flooded by an overflowing river the night of Nov. 2, 1944, Lieut.-Col. Warren, chief of

the Medical Service of the unit, assumed charge of all medical wards and directed the evacuation of all patients without loss or serious disability to the patients. He then efficiently supervised the continuation of treatments and medication in effect before the flood. His exemplary leadership, skill and loyalty to duty manifest the fine tradition of the U. S. Army Medical Corps."

Colonel Warren has also received a letter of appreciation from Col. George T. Wood, Jr., his commanding officer. This hospital has been described as two and a half times the size of The Memorial Hospital in Wilmington.

Colonel Warren entered the Medical Corps in June, 1942, and went overseas in January, 1943. He was stationed in North Africa before being transferred to Italy.

His wife, the former Miss Florence Prickett and their three sons, Robert O. Y. Warren III, William Stuart, and David Warren, live at the Delaware Avenue address.—*Journal-Every Evening*, April 25, 1945.

Capt. Allen G. Schiek

Capt. Allen G. Schiek of Clayton, recently was awarded the Bronze Star for meritorious service in support of combat operations on the Fifth Army front in Italy. He is dental officer of his unit.

Capt. Schiek was graduated from Temple University in June, 1936. From 1937 until he entered the Army, he was associated with The Memorial Hospital, and was also chief of the dental staff of Brandywine Sanitarium. He is a member of the American Dental Association, Delaware State Dental Society, and Academy of Stomatology, Philadelphia.

He entered the Army in May, 1942, and served at Camp Forrest, Tenn., and Camp McKane, Miss., before coming overseas.

His wife, Mrs. Elizabeth R. Schiek, and their daughter, Elizabeth Ann, 26 months old, live in Claymont.—*Sunday Star*.

Note—In a future issue THE JOURNAL will publish the roster of Delaware physicians in the services, with notes on their organizations and theatres. Servicemen are requested to send this data to the Editor now.

+ Editorial +

DELAWARE STATE MEDICAL JOURNAL

Owned and published by the Medical Society of Delaware, a scientific society, non-profit corporation. Issued about the twentieth of each month under the supervision of the Committee on Publication.

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822 North American Building

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Articles are accepted for publication on condition that they are contributed solely to this JOURNAL. Manuscripts must be typewritten, double spaced, with wide margins, and the original copy submitted. Photographs and drawing for illustrations must be carefully marked and show clearly what is intended.

Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index Medicus, published by the American Medical Association, Chicago.

Changes in manuscript after an article has been set in type will be charged to the author. THE JOURNAL pays only part of the cost of tables and illustrations. Unused manuscripts will not be returned unless return postage is forwarded. Reprints may be obtained at cost, provided request is made of the printers before publication.

The right is reserved to reject material submitted for publication. THE JOURNAL is not responsible for views expressed in any article signed by the author.

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Subscription price: \$2.00 per annum, in advance. Single copies, 20 cents. Foreign countries: \$2.50 per annum.

VOL. 17 SEPTEMBER, 1945 No. 9

CONDOLENCES

The death on September 24th of Mrs. Marguerite Rokey Chipman, wife of Dr. I. Lewis Chipman, President of the Medical Society of Delaware, casts a gloom upon the coming Annual Session of the Society. Mrs. Chipman was beloved by all who knew her, and her passing leaves a void that time alone can soften. A splendid wife and mother, and active in church, club and Auxiliary affairs, she leaves behind a whole host of friends who will remember her long and well.

If our memory be correct, this is the first occasion in the past thirty years that a President in office has suffered the loss of his wife. It is especially sad that it occurred just two weeks before the Annual Session. We know we speak for every member when we offer to Dr. Chipman, his son, and his daughter the sincerest condolences of THE JOURNAL and of the Society.

THE ANNUAL SESSION

The 146th Annual Session of the Medical Society of Delaware will be held at the Delaware Academy of Medicine, Wilmington, October 8-10, 1945. President Chipman, Secretary Speer, and the Committee on Scientific Work have prepared an unusually fine program.

The House of Delegates will meet October 8th at 8:30 p. m. Due to war conditions it was not possible to print the various reports prior to this meeting, hence, in order that the meeting be not unduly prolonged, delegates and alternates are urged to be punctual in their attendance.

Scientific sessions will be held Tuesday morning and afternoon, October 9th, and Wednesday morning, October 10th. Twelve scientific papers will be presented, covering important phases of both war and civilian practice. Our members will not willingly miss these presentations. Programs will be mailed soon to each member—*please bring your program with you*—there is still a paper shortage.

The social features will consist of luncheons on Tuesday and Wednesday, October 9th and 10th, and a smoker Tuesday evening at the Shrine Club. No urging will be necessary for these occasions.

The Woman's Auxiliary will meet Wednesday, October 10th, at the Wilmington Y. W. C. A. Reports of officers and committees will be made, and there will be an address by Mrs. David W. Thomas, President of the National Auxiliary. The ladies will then be the guests of the Society at luncheon at the Hotel duPont, following which there will be a tea at the home of Mrs. Lawrence J. Jones.

Busy as we all are, every doctor owes something to his profession: so spake Theodore Roosevelt. The least we can do is to give our Society these two days; so, doctor, you will be expected.

BOOK REVIEWS

Clinical Biochemistry. By Abraham Cantorow, M. D., Professor of Physiological Chemistry, Jefferson Medical College; and Max Trumper, Ph. D., Lt. Commander, H(S), USNR, Naval Medical Research Institute, Bethesda, Md. Third edition. Pp. 647, with 29 illustrations. Cloth. Price, \$6.50. Philadelphia: W. B. Saunders, Company, 1945.

It has been six years since the previous edition of this popular book has appeared and the great progress in biochemistry during that time has caused the addition of much new material and revision of the old, the major additions involving over twenty tests or studies. An entirely new chapter on "Hormone Assay and Endocrine Function" has been included. With few exceptions the technique of laboratory methods has not been discussed, being readily available in the standard texts on that subject. The book concludes with "Outline of Chemical Abnormalities and Various Disorders," which is extremely helpful in suggesting the tests which should be performed on a given tentative diagnosis. The purpose of the book "is to consider how the internal environment of the body is altered by certain specific changes in tissue and organ physiology. It is further intended to indicate the manner in which the physician may best avail himself with information which can be obtained by biochemical studies." These

purposes the book attains to a remarkable degree and it, therefore, is recommended without reservation.

Facial Prosthesis. By Arthur H. Bulbulian, D. D. S., Director, Museum of Hygiene and Medicine, Mayo Foundation, Rochester, Minn. Pp. 241, with 202 illustrations. Cloth. Price, \$5.00. Philadelphia: W. B. Saunders Company, 1945.

Since textbooks on plastic surgery of the face or works on dental prosthesis frequently do not deal comprehensively with the subject, the author devotes the first six chapters to a discussion of fundamental principles alone. Here he makes plain his ideas as to whether a given case should be treated by the prosthetic method or by plastic surgery. This discussion is extremely helpful.

The remaining eight chapters are devoted to prosthetic reconstruction of the nose, ear, and orbit and eye, and the materials and technique involved. These discussions are quite full and easily understood, and are fortified by the illustrations, which are excellent. Fig. 197 should read "right" instead of "left" ear.

This book should prove of unusual value to the plastic surgeons and dentists who are interested in this field. The field, however, is so specialized that we do not believe many general surgeons would attempt the prosthesis.

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